

WHAT IS CLAIMED IS

1. A mechanical weightlifting machine for use with free weights comprising:

a support structure having an elevated pivot with a  
5 pivot axis;

an articulating mechanism engaging the pivot having at least one articulating structure with a projecting lever arm connected to the pivot for limited pivot about the axis of the pivot, wherein the projecting lever arm has a distal end on one  
10 side of the pivot with a connection device having a depending link member with an end having means for engaging a free weight, and, wherein the articulating structure has an adjustment mechanism with a displaceable connection device having a counterweight locatable on the opposite side of the pivot;

actuation means engaging the connection device for displacing the connection device relative to the axis of the pivot wherein the leverage of the connected counterweight directed to the projecting lever arm is adjusted; and,

a ~~user controlled~~ remote from the adjustment  
20 mechanism with control means for actuating the adjustment mechanism and displacing the connection device.

2. The mechanical weightlifting machine of claim 1 wherein the actuation means has displacement means for displacing the connection device within a limited range including a first  
25 location on the opposite side of the pivot from the projecting lever arm to a second location on the same side of the pivot from

the projecting lever arm.

3. The mechanical weightlifting machine of claim 1 wherein the counterweight is connected to the connection device.

4. The mechanical weightlifting machine of claim 3 wherein the connection device has a depending link with a distal end and a second lever arm having a first pivotal connection with the distal end of the depending link and a second pivotal connection with the support structure, wherein the depending link and the second lever arm comprise the counterweight.

5. The mechanical weightlifting machine of claim 4 wherein the second lever arm has support means for supporting added counterweights to the second lever arm.

6. The mechanical weightlifting machine of claim 5 wherein the second lever arm has a first pivot end pivotally connected to the support structure and a second distal end, wherein the support means is located at the second distal end of the second lever arm.

7. The mechanical weightlifting machine of claim 1 wherein the depending link member is rigid having a universal joint connection to the distal end of the projecting lever arm.

8. The mechanical weightlifting machine of claim 1 wherein the actuation means includes a screw threadably engaging the connection device.

9. The mechanical weightlifting machine of claim 8 wherein the actuation means includes a drive means for rotating the screw.

10. The mechanical weightlifting machine of claim 9 wherein the drive means comprises a reversible electric motor.

11. The mechanical weightlifting machine of claim 1 wherein the user control comprises a remote control device electronically connected to the electric drive means.

12. The mechanical weightlifting machine of claim 11 wherein the control means comprises an electronic controller circuitry associated with the electric motor for controlling the motor in response to control signals from the remote controller.

13. The mechanical weightlifting machine of claim 1 wherein the articulating mechanism has two articulating structures each structure having an adjustment mechanism with an independently displaceable connection device.